Family values:
Maternal care in rattlesnakes is more than mere attendance

Melissa Amarello[1], Jeffrey J. Smith, & John Slone
SocialSnakes.blogspot.com
[1]School of Life Sciences, Arizona State University

Arizona black rattlesnakes

(*Crotalus cerberus*) are medium-sized, live-bearing vipers that often live in seasonally social groups, a type of fission-fusion society.

Parental care is important in many diverse taxa because of its positive impact on the parent's fitness. Many female pit vipers remain with their eggs during incubation or their young for a few days after birth. However, observations of parents defending their young in the wild and parent-offspring associations more than a few days after birth are rare[1]. Here we present observations of free-ranging *C. cerberus* caring for their young.

[1]HW Greene, PG May, DL Hardy, JTM Sciturro, in Biology of the pitvipers, GW Schuett, M Hoggren, ME Douglas, HW. Greene, Eds. (Eagle Mountain, UT, 2002), 179–205.

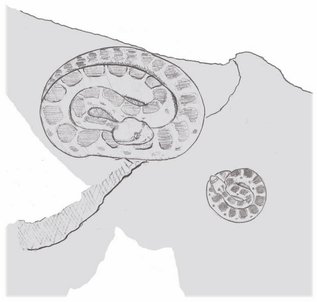
Maternal attendance

In 2010, we monitored 11 pregnant rattlesnakes: four solitary individuals and two aggregations composed of three and four individuals each. After giving birth, the females and neonates stayed together at the rookeries for up to 12 days. While the presence of an adult rattlesnake may deter some predators, we observed defensive behavior after, but not before, birth.

Snake E basking with neonates (left) quickly takes on a defensive posture at the approach of a human predator (right).

A rattlesnake helper?

On 30 August 2010 we observed what appeared to be an adult rattlesnake (Snake P) discouraging a neonate (Snake N) from potential exposure to a human predator. Snake P was pregnant at this time, so Snake N had a different mother. Perhaps this is why some female rattlesnakes aggregate during gestation and after the birth of their offspring.



15:27 Snake P (adult female) and Snake N (neonate) are at rest in a shaded rock shelter.

15:28 Snake N moves restlessly in cover and then begins to move toward open ground.

15:29 Snake P swiftly confronts Snake N before it wanders away from cover; her posture is unusually rigid.

15:31 Snake N stops, turns around, and coils in cover. Snake P's head returns to her coils.

Vigilance from cover

Often neonates were on the surface without an adult visible. On five occasions when we approached too closely, the nearest adult either rattled from within her hiding place or came out to investigate the threat. Clouded eyes and naivete make neonates particularly vulnerable, so they often retreat into nearby shelter when alerted by an adult rattlesnake.

Long-term maternal care

Snake W & her 2010 offspring in April 2011

We identified individual rattlesnakes using pattern aberrancies to minimize capturing them and disturbing their behavior.

Like other rattlesnakes, neonate *C. cerberus* use the same winter hibernaculum (den) as their mother. During the spring emergence period we observed females basking near their neonates on four occasions and following their neonates as they explored the area around the den on one occasion.

Potential role of males

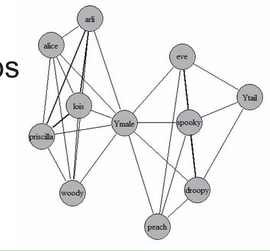
Adult male (left) with female and her neonate.

Adult males visited two rookeries in 2010 shortly after the neonates were born. In both cases the males rested with neonates and allowed them to crawl and coil on and near them.

During these interactions, we did not observe any defensive behavior by the males or reproductive behavior between the males and females.

Future Directions

- Structure of rattlesnake groups using social network analysis
- Relatedness within and between social groups using microsatellite markers



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